

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-53. (Canceled)

54. (Currently amended) ~~The system of claim 38,~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the respiration processor is further configured to distinguish between different types of disordered breathing, and the first respiration characteristic

comprises a type of disordered breathing selected from the different types of disordered breathing.

55. (Original) The system of claim 54, wherein the type of the disordered breathing comprises central disordered breathing.

56. (Original) The system of claim 54, wherein the type of the disordered breathing comprises obstructive disordered breathing.

57. (Original) The system of claim 54, wherein the type of the disordered breathing comprises mixed central and obstructive disordered breathing.

58. (Original) The system of claim 54, wherein the type of the disordered breathing comprises apnea.

59. (Original) The system of claim 54, wherein the type of the disordered breathing comprises hypopnea.

60. (Original) The system of claim 54, wherein the type of the disordered breathing comprises mixed apnea and hypopnea.

61. (Original) The system of claim 54, wherein the type of the disordered breathing comprises Cheyne-Stokes respiration.

62. (Original) The system of claim 54, wherein the type of the disordered breathing comprises periodic breathing.

63. (Original) The system of claim 54, wherein the type of the disordered breathing comprises sleep disordered breathing.

64. (Canceled)

65. (Canceled)

66. (Currently amended) ~~The system of claim 38;~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the one or more characteristics associated with the respiration comprises a respiration volume.

67. (Currently amended) ~~The system of claim 38,~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the one or more characteristics associated with the respiration comprises minute ventilation.

68. (Currently amended) ~~The system of claim 38,~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first

respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the one or more characteristics associated with the respiration comprises expiration slope.

69. (Currently amended) ~~The system of claim 38,~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the

generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;
wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the one or more characteristics associated with the respiration comprises expiration volume.

70. (Currently amended) ~~The system of claim 38,~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic; and
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively;

wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component; and
wherein the respiration processor is configured to detect the one or more characteristics associated with the respiration based on morphological features of the respiratory waveform.

71-77. (Canceled)

78. (Currently amended) ~~The system of claim 38, further comprising~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic;
a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively; and
a communication device configured to transmit information about at least one of the respiration waveform, the one or more characteristics associated with the respiration, and the marked respiration waveform;

wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component.

79. (Canceled)

80. (Currently amended) ~~The system of claim 38, further comprising~~ A system for characterizing respiration of a patient, comprising:

a respiration waveform sensor configured to acquire a respiration waveform;
a respiration processor configured to determine one or more characteristics associated with the respiration and comprising a trigger circuit configured to detect a triggering event, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic;

a waveform generator coupled to the respiration waveform sensor and the respiration processor, the waveform generator configured to generate a marked respiration waveform comprising the respiration waveform and symbols indicating the one or more characteristics associated with the respiration, the generation of the marked respiration waveform being activated in response to the detection of the triggering event, and the symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively; and

a memory configured to store information about at least one of the respiration waveform, the one or more characteristics associated with the patient respiration, and the marked respiration waveform;

wherein at least one of the respiration waveform sensor, the respiration processor, and the waveform generator comprises an implantable component.

81-83. (Canceled)

84. (Currently amended) ~~The method of claim 81, further comprising~~ A system for characterizing respiration of a patient, comprising:

means for acquiring a respiration waveform;

means for detecting one or more characteristics associated with the respiration, the one or more characteristics including a first respiration characteristic and a second respiration characteristic different from the first respiration characteristic;

means for detecting a triggering event;

means for generating a marked respiration waveform in response to the triggering event using the respiration waveform and one or more symbols indicating the one or more characteristics associated with the respiration, the one or more symbols including a first symbol indicating the first respiration characteristic and a second symbol indicating the second respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively; and

means for transmitting information about at least one of the respiration waveform, the one or more characteristics associated with the patient respiration, and the marked respiration waveform;

wherein at least one of the means for acquiring, means for detecting, and means for generating includes an implantable component.

85. (Canceled)

86. (Canceled)